Multimedia Case Authoring And Simulation System

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We have designed a medical patient case simulation platform that incorporates a simulation engine with a case authoring module. The case authoring module requires no programming skills by the author and can be used to develop case simulations within any medical specialty. The cases produced by the authoring module can be immediately run in the simulation engine which presents the changing patient course; including history, physical findings, laboratory and radiology results at each diagnostic and therapeutic decision point during the simulation.

The system is IBM compatible, microcomputer based, requiring Windows 3.0 or higher or OS/2 2.0, and at least a 386 microprocessor with 2-4 MB of hard disk space. A fully configured system presents, digitized pictures, sound, and video. The author may easily designate any of these "multimedia" events to be associated with a given finding, therapy, diagnosis, or management options that are created as the case is authored.

Case authorship requires only advance planning of differential diagnostic and management options with resulting correct and incorrect paths, as well as historical, physical examination, radiological and laboratory, abnormalities associated with each pathway. The case building process is easy and follows simple rules based on mouse driven "click and choose" icons, windows and list boxes. The simulation engine provides default normal or negative statements for parameters not chosen

to be abnormal by the author during the computerized case design. Scene branching is automatically performed by the simulation engine provides default normal or authoring module dependent on management and disposition choices entered by the author at each particular scene.

The entire tree is automatically constructed and graphically represented, and the author has ability to edit any scene by choosing the branch and clicking on it with the mouse. The author is then queried to enter, new data for the next scene, and is allowed to specify a jump to an existing scene, in order to get the student back on the correct path to management and diagnosis.

The user interface of the simulation engine is exceptionally friendly; is icon based and does not require any typing beyond the initial entries for user identification. The student uses the mouse to navigate through the simulation. A "medical record" is kept of all data requested by the student and feedback on diagnostic and therapeutic choices is provided according to the author's specifications.

The capability of the system to create unlimited, branched pathways and multiple scenarios (including incorrect paths to diagnosis or therapy) based on the diagnostic management options entered by the author, combined with the ease of authorship and user friendly interface make this platform an excellent teaching and learning tool.